



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No. .... 10/817,548  
Filing Date .... April 2, 2004  
Inventor .... Martin Ceredig Roberts et al.  
Assignee .... Micron Technology, Inc.  
Group Art Unit .... 2814  
Examiner .... Peralta, Ginette  
Attorney's Docket No. .... MI22-2550  
Title: Methods of Forming Capacitors, and Methods of Forming DRAM  
Circuitry

**SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT**

References –See Attached Form PTO-1449

The attached Form PTO/SB/08a is submitted in compliance with 37 CFR §1.56. Pursuant to FEDERAL REGISTER, Vol. 69, No. 182, pg. 56542 (September 21, 2004), no copies of any cited U.S. patents or U.S. published applications are included herewith. Copies of all other cited art are attached. No admission is made regarding whether the listed references are prior art.

Citation of the referenced art is respectfully requested.

Respectfully submitted,

Dated: December 15, 2005

By: Jennifer J. Taylor  
Jennifer J. Taylor, Ph.D.  
Reg. No. 48,711

Substitute for form 1449/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

*(Use as many sheets as necessary)*

Sheet	1	of	1
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**Complete if Known**

Application Number	11/168,697
Filing Date	June 27, 2005
First Named Inventor	Arup Bhattacharyya
Art Unit	2815
Examiner Name	Lee, Eugene
Attorney Docket Number	MI22-2911

## U. S. PATENT DOCUMENTS

[illegible]

## FOREIGN PATENT DOCUMENTS

[illegible]

Examiner Signature	Date Considered
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

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CLIPPEDIMAGE= DE004213945A1

PUB-NO: DE004213945A1

DOCUMENT-IDENTIFIER: DE 4213945 A1

TITLE: Memory capacitor in semiconductor device for DRAM cells -  
comprises

conductively doped poly:silicon@ layers and insulating layer comprising  
capacitor dielectric adjacent to memory node of 2nd poly:sil

PUBN-DATE: November 5, 1992

INVENTOR-INFORMATION:

NAME	COUNTRY
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FAZAN, PIERRE	US
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CHAN, HIANG C	US
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ASSIGNEE-INFORMATION:

NAME	COUNTRY
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MICRON TECHNOLOGY INC	US
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APPL-NO: DE04213945

APPL-DATE: April 28, 1992

PRIORITY-DATA: US69285991A (April 29, 1991)

INT-CL\_(IPC): H01L021/72; H01L027/108

EUR-CL (EPC): H01L027/108

US-CL-CURRENT: 257/307

#### ABSTRACT:

A memory capacitor has (1) a conductively doped first polysilicon layer with  
a  
first and a second end, the first end making contact with a memory node  
connection of an access device and the second end being insulated from an  
adjacent conductive material by a dielectric; (2) a conductively doped second  
polysilicon layer adhering to the first polysilicon layer, forming a memory  
node plate of I-shaped cross-section; (3) an insulating layer comprising a  
capacitor dielectric adjacent to the memory node plate and extending the  
same

distance as the latter except for regions for the contact point at its first end and the insulation at its second end; and (4) a conductively doped third polysilicon layer forming a cell plate which has an upper and a lower surface, and adjacent to and of the same extent as the capacitor dielectric layer.

The

doped polysilicon is pref. produced by gas-phase deposition, as are all the dielectric layers. The capacitor dielectric layer is selected from nitrides, oxidised nitrides, Ta<sub>2</sub>O<sub>5</sub>, oxidised Ta<sub>2</sub>O<sub>5</sub> and SrTiO<sub>3</sub>. USE/ADVANTAGE -

Used in

the mfr. of DRAM, VRAM and other stacked memory cell devices. Capacitor maximises the memory cell active surface in the prodn. of high-density DRAMs

(an increase of 200% or more is quoted).